

## INTRODUCING INDUSTRIAL SOLID WASTE REDUCTION



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To run the program, do one of the following:

### **Windows 3.x**

Insert into CD

Rom drive.

Click File/Run.

Run dialog

appears.

Enter your

CD drive

letter and

KPPC16.

Example:

D:\KPPC16.

Click OK.

### **Windows 95**

Insert into CD

Rom drive.

Click Start/Run.

Run dialog

appears.

Enter your CD

drive letter

and KPPC32.

Example:

D:\KPPC32

Click OK.

PRODUCED BY  
KENTUCKY POLLUTION PREVENTION  
CENTER (KPPC) AT THE  
UNIVERSITY OF LOUISVILLE

# Facility Walk-Through



Date and Time of Walk-Through	Department
Department Manager	Telephone Number
Team Members Conducting Walk-Through	
Employees Interviewed	

## 1 Waste Components

Waste-Producing Activity or Equipment	Waste Material Produced	Estimated Amount of Waste Produced per Year	Current Wast Reduction Activities (if any)

[illegible]

## 1 Waste Components (Continued)

[illegible]

## 1 Target Materials for Waste Reduction

Based on the facility walk-through, list all materials that could be targeted by your waste reduction program. For each waste type, list all potential waste prevention, recycling, and/or composting methods that could be effective. Although recycling and composting are preferred ways of *managing* wastes, you may want to consider *preventing* the waste in the first place.

[illegible]

# Waste Composition Data Sheet

Waste Type		% of Total	x Total Waste	Yard <sup>3</sup> per Week	Conversion Factor	Total Wt. per Week	Source and Description
Cardboard	Cardboard (OCC)						
	Gaylords						
Filters	Filter Cake						
	Oil / Other						
	Paint						
	Other						
Food Waste							
Glass	Container - Brown						
	Container - Clear						
	Container - Green						
	Laminated						
	Paint						
	Other						
Metals	Aluminum						
	Brass						
	Copper						
	Ferrous						
	Other						
Paper	General Office Paper						
	Computer - White						
	Computer - Green Bar						
	Newsprint						
	Other						
Plastic	1 - PET						
	2 - HDPE						
	3 - PVC						
	4 - LDPE						
	5 - PP						
	6 - PS						
	7 - Other						
	Stretch Wrap						
	Other						

# Waste Composition Data Sheet

Waste Type		% of Total	x Total Waste	Yard <sup>3</sup> per Week	Conversion Factor	Total Wt. per Week	Source and Description
Rubber	Cured						
	Uncured						
	Other						
Textile	Gloves						
	Rags						
	Other						
Waste Oil							
Wood	Construction						
	Dunnage						
	Pallets						
	Other						
Yard Waste	Brush						
	Grass / Leaves						
	Other						
Other							

## Types of Plastics and Their Codes



**PET - Polyethylene Terephthalate**  
uses: soda bottles, food packaging film



**PP - Polypropylene**  
uses: deli, yogurt, cottage cheese containers, screw-on caps, long-life items



**HDPE - High Density Polyethylene**  
uses: milk jugs, some detergent containers



**PS - Polystyrene**  
uses: food containers



**PVC - Polyvinyl Chloride**  
uses: food wrap, blister packs, cooking oil, bottles



**Other**  
uses: some multi-resin containers



**LDPE - Low Density Polyethylene**  
uses: shrink wrap, garment bags, plastic bags

# Waste Composition Data Sheet

Page 3 of 4

## General Information and Conversion Factors

Cans:	Aluminum, Whole Loose	1 yard = 70 lbs
	Aluminum, Flattened	1 yard = 1500 - 200 lbs
	Aluminum, Whole	1 full grocery bag = 1.5 lbs
	Aluminum, Whole	1 55 gallon bag = 13 - 20 lbs
	Steel, Whole	1 yard = 190 - 230 lbs
	Steel, Flattened	1 yard = 4000 - 5500 lbs
Cardboard:	Cardboard Boxes, Loose	1 yard = 40 - 50 lbs
	Cardboard Boxes, Loose Flattened	1 yard = 275 - 300 lbs
	Cardboard, Baled	1 yard = 550 - 850 lbs
Energy:	3415 BTU	1 kilowatt hour
	0.746 kilowatt	1 HP
	Used Tires	14,000 BTU per lb
	Low Grade Fuel Oil	130,000 BTU per gallon
	1 Gallon Oil	38 kilowatt hours
	Dry Hardwood	16,000,000 BTU per ton
	Dry Hardwood	4,685 kilowatt hours per ton
	Dry Hardwood	16,000 lbs steam (@212 F) per ton
Food Wastes:	Burning 220 tons of Dry Hardwood	1 ton of ash
	Garbage, Not Compacted	1 yard = 400 - 450 lbs
	Solid and Liquid Fats	1 55 gallon drum = 400 - 415 lbs
Glass:	Glass, Whole Bottles	1 full grocery bag = 16 lbs
	Glass, Whole Bottles	1 yard = 500 - 600 lbs
	Glass, Semi-Crushed	1 yard = 1000 - 1800 lbs
	Glass, Crushed	1 yard = 1800 - 2500 lbs
Paper:	Computer Paper, Loose	1 yard = 500 - 600 lbs
	Computer Paper, Compacted	1 yard = 1000 - 1200 lbs
	Bond Paper, Loose	1 yard = 400 - 500 lbs
	Bond Paper, Compacted	1 yard = 750 - 950 lbs
	Newspaper	12" stack = 35 lbs
	Newspaper, Loose	1 yard = 350 - 500 lbs
	Newspaper, Compacted	1 yard = 750 - 1000 lbs



## General Information and Conversion Factors

Plastic:	PET Bottles, Whole Loose	1 yard = 30 - 40 lbs
	PET Bottles, Whole Loose	1 Gaylord = 40 - 53 lbs
	PET Bottles, Baled	30"x48"x60" = 500 lbs
	PET Bottles, Granulated	1 Gaylord = 700 - 750 lbs
	PET Bottles, Granulated	1 truck-load = 44,000 lbs
	HDPE Bottles, Whole Loose	1 yard = 24 lbs
	HDPE Bottles, Baled	30"x48"x60" = 500 - 800 lbs
	HDPE Bottles, Granulated	1 Gaylord = 800 - 1000 lbs
	HDPE Bottles, Granulated	1 truck-load = 42,000 lbs
	Mixed PET & HDPE, Whole Loose	1 yard = 32 lbs
	Mixed Solid Granulated	1 yard = 1600 lbs
Yard Wastes:	Stretch Wrap Film, Baled	30"x42"x60" = 1100 lbs
	Leaves, Piled	1 yard = 250 - 300 lbs
	Leaves, Compacted	1 yard = 550 - 600 lbs
	Grass Clippings	1 yard = 400 - 450 lbs
Miscellaneous:	Wood Chips	1 yard = 500 - 525 lbs
	Passenger Car Tires	= 22 lbs each
	Truck Tires	= 60 lbs each
	Used Motor Oil	= 7 lbs per gallon



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Total

# Pallet Estimates



	Example	Example																		
Size		36 X 42	45 X 60																	
Quantity		P20	D10																	

NOTE: P = procuring, D = disposing of, and the number indicates monthly average.

# Metal Waste Estimates



Material Description	Pounds per Month	Material Cost per Pound	Labor & Overhead	Cost per Month	Cost per Year
Aluminum					
Assemblies					
Brass					
Chromium					
Copper					
Iron & Steel					
Lead					
Scrap Parts					
Sub-Assemblies					
Zinc					
Other Items					

# Cost of Baling Cardboard for Recycling



Amortization = Cost of Baler \$ <input type="text"/>	Divided by 5* =	\$
Cost of Wire = \$.85 X <input type="text"/>	Bales per year =	\$
Cost of Electricity = \$1.00 X <input type="text"/>	Bales per year =	\$
Cost of Maintenance = .01 X \$ <input type="text"/>	Cost of Baler =	\$
Labor Cost = .67 X \$ <input type="text"/>	per hour X <input type="text"/>	Bales per year = \$
Total Annual Cost =		\$
<p>* Baler will last much longer than 5 years, this is just a convenient number.</p>		
<p><b>Revenue From Sale of Cardboard</b></p>		
12 X <input type="text"/>	tons per month X \$ <input type="text"/>	per ton = \$ <input type="text"/> per year
Annual Revenue From Sale of Cardboard		\$
Plus Annual Savings in Disposal Cost		\$
Total		\$
Minus Cost of Baling Cardboard		\$
Net Savings or <LOSS>		\$

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# Associated Costs Worksheet



Raw Material Costs	
Labor Costs	
Utility Costs	
Equipment	

# Disposal Costs Worksheet



A Container Location	B Rental Fee Per Week Monthly fee/4.33	C Cu. Yds. Per Week From Waste Quantity Worksheet	D Conversion Factor 4 cu. yds./ ton*	E Tipping Fee	F Pulls Per Week	G Pull Fee	H Container Cost Subtotal $B + ((C / D) * E) + (F * G)$	
* 4 cu. yds. per ton is an acceptable conversion factor for Municipal Solid Waste. Adjust your conversion factor to reflect heavier or lighter material.								